Journal of Physics: Conference Series 2013 vol.478 N1

Investigation of atherosclerotic plaque by high-frequency EPR

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Abstract

We present a comparative study of samples of aorta walls from male patients with atherosclerosis and hydroxyapatite powders with the average size of crystallites of 30 nm synthesized by the wet precipitation technique by using 94 GHz pulsed EPR. Origin of the observed paramagnetic centers is discussed. Supported by the electron microscopy and microanalysis, it is shown that EPR spectra from the calcified biological tissues correlates with those obtained in inorganic hydroxyapatites. The hypothesis about the important role of (nano)hydroxyapatite in formation of the mineral deposits and atherosclerotic plaque instability is further sustained.

http://dx.doi.org/10.1088/1742-6596/478/1/012002